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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,438	07/30/2003	Takao Tsuruoka	IPO-P1754	7844

3624 7590 02/21/2007  
VOLPE AND KOENIG, P.C.  
UNITED PLAZA, SUITE 1600  
30 SOUTH 17TH STREET  
PHILADELPHIA, PA 19103

EXAMINER
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HENN, TIMOTHY J

ART UNIT	PAPER NUMBER
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2622

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/630,438

Applicant(s)

TSURUOKA, TAKAO

Examiner

Timothy J. Henn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 2-14, 18, 20, 26, 27, 29 and 32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 15-17, 19, 22, 23, 28, 30 and 31 is/are rejected.
- 7) ☒ Claim(s) 21, 24 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 2-14, 18, 20, 26, 27, 29 and 32 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 18 December 2006.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 17 and 28 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

#### **[claims 17 and 28]**

Claims 17 and 28 claim setting a threshold value and "reducing the amplitude components in signals which are below the threshold value". In

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contrast, the specification discloses performing hysteresis smoothing (e.g. page 25) and that "signals that are equal to or less than [the] threshold value are excluded" (page 26). The examiner notes that "exclude[ing]" signals is not the same as reducing the amplitude components below a threshold as claimed and further notes that hysteresis smoothing is concerned with rejecting small changes within a signal which is also not the same as reducing the amplitude components below a threshold. Therefore, claims 17 and 28 contain subject matter which is not properly described in the specification.

***Claim Rejections - 35 USC § 101***

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 28, 30 and 31 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

**[claims 28, 30 and 31]**

Claims 28, 30 and 31 claim an image processing program. However, claims 28, 30 and 31 as written do not define any structural or functional relationships between the claimed program and other aspects of the invention which permit the program's functionality to be realized and is therefore non-statutory subject matter.

***Claim Rejections - 35 USC § 102***

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7. The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Prentice et al. (US 7,064,785).

**[claim 1]**

Regarding claim 1, Prentice discloses an image pickup system (Figure 1) comprising: noise estimating means (Figure 1, Item 18) for estimating the amount of noise contained in digitized signals (Figure 1, note A/D converter 14) from an image pickup element (Figure 1, Item 10) in which a plurality of pixels are arranged (Figure 1, Items 12), for each specified unit area comprising a plurality of pixels (i.e. pixel array 10) and noise reducing means for reducing the noise contained in the signals on the basis of the amount of noise estimated by the noise estimating means (Figure 1, Item 16; "DARK CORRECTED IMAGE SIGNAL").

**[claim 15]**

Regarding claim 15, Prentice discloses parameter calculating means for calculating parameters (Figure 1, Item 24) based on the signal value level of the signals (Figure 1, Items 20 and 22; "COUNT") and noise amount calculating

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means for calculating the estimated amount of noise on the basis of the parameters calculated by the parameter calculating means (Figure 1, Item 26).

**[claim 16]**

Regarding claim 16, Prentice discloses noise estimating means comprising an upper limit value setting means for setting an upper limit value on the estimated amount of noise (Figure 1, Item 28; c. 4, ll. 1-10).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 19, 22 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Prentice et al. (US 7,064,785).

**[claim 19]**

Regarding claim 19, Prentice discloses the use of a "control system" for calculating parameters (c. 3, ll. 28-41), but does not disclose averaging a plurality of pixel values in a nearby region. Official Notice is taken that the use of systems which average a plurality of pixels in a nearby region for, e.g. interpolation, resolution reduction, defective pixel correction, etc. are well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include pixel averaging by the "control system" of

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Prentice to assist in interpolation, resolution reduction, defective pixel correction, etc. The examiner notes that claim 19 does not specify that the averaged pixel signal is associated with estimation of a noise value.

**[claim 22]**

Regarding claim 22, Prentice discloses the use of a "control system" for calculating parameters (c. 3, ll. 28-41), but does not disclose calculating a gain parameter. Official Notice is taken that the use of amplifier systems in imaging devices which amplify the pixel outputs by a calculated gain based on, for example, exposure information are well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an amplifier system which amplifies the pixels by a gain calculated by the "control system" of Prentice to increase the output level of the image signals. The examiner notes that claim 22 does not specify that the calculated gain parameter is associated with estimation of a noise value.

**[claim 23]**

Regarding claim 23, Prentice discloses the use of a "control system" for calculating parameters (c. 3, ll. 28-41), but does not disclose calculating a shutter speed parameter. Official Notice is taken that the use of shutter speed setting devices in imaging devices which determine an appropriate exposure time based on exposure information are well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a shutter speed control system which uses a shutter speed calculated by the "control system" of Prentice to expose the imaging device of Prentice for an

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appropriate time. The examiner notes that claim 23 does not specify that the calculated shutter speed parameter is associated with estimation of a noise value.

***Allowable Subject Matter***

11. Claims 17, 21, 24 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**[claim 17]**

Regarding claim 17, the prior art does not teach or fairly suggest setting an estimated noise value as a threshold value and reducing signal amplitude components which are equal to or less than the threshold value. While image processing systems which use thresholds to determine whether an image signal is to be processed (e.g. Peters et al. (US 5,563,962); Harada (US 7,133,072)) are known in the prior art, the specify processing method claimed is not taught or suggested.

**[claim 21]**

Regarding claim 21, the prior art does not teach or fairly suggest calculating a variance of signals in an OB region, estimating a temperature based on the calculated variances, estimating a noise amount based parameters determined from the temperature, signal values, the gain for the signals or the shutter speed and reducing the noise in the signals based on the estimated noise amount. While it is known in the prior art to estimate a temperature from OB



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signals (e.g. Rossi et al. (US 6,974,973); Cazier et al. (US 6,249,647); Cazier et al. (US 6,927,795)) and estimating noise signals to be removed from image signals (e.g. Prentice), estimating a temperature from the variance of OB signals and estimating a noise value to reduce noise in the image signals as claimed is not taught or suggested.

**[claims 24 and 25]**

Regarding claims 24 and 25, the prior art does not teach or fairly suggest calculating an amount of noise based on the equation:

$$N = (AL^B + C)D$$

wherein A, B, C and D are based on the functions:  $a(T, G)$ ,  $B(T, G)$ ,  $C(T, G)$  and  $D(S)$  as claimed. While calculating noise signals is known in the prior art (e.g. Prentice), the claimed equations are not taught.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

i.	Itoh	US 2003/0128285
ii.	Kimura	US 7,102,673
iii.	Neter	US 6,965,395
iv.	MacLean	US 6,144,408
v.	Yoshida	US 2002/0012053
vi.	Baer	US 6,714,241
vii.	Matherson	US 2003/0214590

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viii.	Houchin et al.	US 5,047,861
ix.	Jacobs	US 7,102,672
x.	Kubo	US 6,980,335

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Henn whose telephone number is (571) 272-7310. The examiner can normally be reached on M-F 9:00 AM - 6:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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TJH

2/16/2006



TUAN HO  
PRIMARY EXAMINER